

PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) DWB002								
<p>I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]</p> <p>on <u>1/21/2007</u></p> <p>Signature <u>/Debra B. Burns/</u></p> <p>Typed or printed name <u>Debra B. Burns</u></p>	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; text-align: center; padding: 5px;">Application Number 10/710,854</td><td style="width: 50%; text-align: center; padding: 5px;">Filed 8/8/2004</td></tr><tr><td colspan="2" style="text-align: center; padding: 5px;">First Named Inventor David W. Burns</td></tr><tr><td style="text-align: center; padding: 5px;">Art Unit 2629</td><td style="text-align: center; padding: 5px;">Examiner Regina Liang</td></tr></table>		Application Number 10/710,854	Filed 8/8/2004	First Named Inventor David W. Burns		Art Unit 2629	Examiner Regina Liang		
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First Named Inventor David W. Burns										
Art Unit 2629	Examiner Regina Liang									
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <table style="width: 100%;"><tr><td style="width: 50%; vertical-align: top;"><input checked="" type="checkbox"/> applicant/inventor.</td><td style="width: 50%; text-align: center; vertical-align: top;"><u>/David W. Burns/</u> Signature</td></tr><tr><td style="vertical-align: top;"><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</td><td style="text-align: center; vertical-align: top;"><u>David W. Burns</u> Typed or printed name</td></tr><tr><td style="vertical-align: top;"><input checked="" type="checkbox"/> attorney or agent of record. Registration number _____</td><td style="text-align: center; vertical-align: top;"><u>408-729-6375</u> Telephone number</td></tr><tr><td style="vertical-align: top;"><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____</td><td style="text-align: center; vertical-align: top;"><u>1/21/2007</u> Date</td></tr></table> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p>			<input checked="" type="checkbox"/> applicant/inventor.	<u>/David W. Burns/</u> Signature	<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)	<u>David W. Burns</u> Typed or printed name	<input checked="" type="checkbox"/> attorney or agent of record. Registration number _____	<u>408-729-6375</u> Telephone number	<input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____	<u>1/21/2007</u> Date
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<input checked="" type="checkbox"/> *Total of <u>1</u> forms are submitted.										

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: David W. Burns

Application No. 10/710,854

Filed: August 8, 2004

Confirmation No. 4853

For: STYLUS-BASED COMPUTER
INPUT SYSTEM

Examiner: Regina Liang

Art Unit: 2629

Attorney Docket No. DWB002

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Commissioner,

The Applicant submits this Pre-Appeal Brief Request for Review per the OG Notice of 12 July 2005 along with a Notice of Appeal per 37 CFR § 41.31 and corresponding fees to appeal the decision of the Examiner of Group Art Unit 2629 dated October 31, 2006, finally rejecting claims 1-40 of U.S. Patent Application No. 10/710,854.

REMARKS

1) Applicant Believes He is the First and True Inventor of the Claimed Invention

The Applicant has not seen his claimed invention in the marketplace, in any publication, or in any patent literature, and recognizes the continued market need for a hoverable, high-resolution, stylus-based computer input system. All of the searches by the Applicant and by the Examiner have resulted in nothing that has convinced the Applicant that he is not the first and true inventor of the claimed invention.

The invention of Burns, unlike the inventions of the cited art, is essentially a compact machine-vision system with two imaging arrays (or one with special optics) comparable to that of high-resolution web cameras, configured to view and recognize a three-dimensional object such as a stylus tip. The images taken of the stylus tip are processed to determine the position and other properties of the stylus. The resulting determination can be used, for example, to move a pointer on a computer screen, to enter script such as a person's signature, or to emulate mouse functions such as a click and a double-click with equivalent tapping motions of the stylus. As aids for recognizing the stylus, imaging targets may be placed on one or both ends to differentiate writing and erasing modes, to determine the angle of the stylus with respect to the stylus entry region, or to determine rotation about the central axis of the stylus for calligraphy, symbols and languages where the stroke direction and width are relevant. A light source such as an LED may be located near the telemetric imager to illuminate the stylus when ambient lighting is insufficient, or to aid in stylus location determination by flashing on and off so that consecutive images can be subtracted from each other to mitigate the effects of background lighting.

An advantage and distinction of the present invention from prior art and commercially available devices is that the stylus needs no active parts such as a battery, a switch, an RF chip, an LED, a laser diode or a camera. Even a simple, inexpensive lead pencil suffices, which also allows writing on paper or other medium while the tip is tracked and information is entered into the computer. Combined with the speed and dexterity of the human hand, the invention offers significant improvements over a contemporary optical mouse, while being able to emulate all of its capabilities.

2) The Claimed Invention has Fewer Parts than Any Cited Art

The approach of Burns uses a telemetric imager having one or two optical imaging arrays, such as found in conventional cell phone cameras or digital cameras, and a controller that determines the stylus position from images of the stylus tip (see claim 1 and Fig. 1 *inter alia* of Burns). No active components are required in the stylus.

The cited art, on the other hand, uses more parts than Burns such as a reflective or absorptive frame (Figs. 1 and 21 of Omura, U.S. Pat. 6,594,023 and Fig. 2 of Ogawa, U.S. Pat. 6,100,538), cylindrical lenses for collimating light (Fig. 5 of Omura and Fig. 2 of Ogawa), arrays of LEDs and light detectors on opposite sides of a frame (Fig. 7 of Omura), LEDs in the stylus (Fig. 8 of Omura and Fig. 5 of Ogawa), a rotating scanning system (Fig. 11 of Omura), an ultrasonic transducer on an input pen (Fig. 2 of Tsuji, U.S. Pub. 2001/0020936), a mercury switch in the stylus (Fig. 3 of Brown, U.S. Pat. 4,430,526), a pressure sensor, battery and switches in a pointing device (Fig. 3 of McDermott et al, U.S. Pat. 5,635,683), an optical motion sensor in a pen-like computer pointing device (Fig. 1 of Badyal et al, U.S. Pat. 6,151,015), a rotating detector and a retroreflecting strip in a framed area (Fig. 1 of Griffin, U.S. Pat. 4,553,842), and others.

3) The Claimed Invention Operates Differently than Any Cited Art

The invention of Burns essentially uses a 3-D imaging approach capable of determining the 3-D position of a stylus tip. Other stylus attributes such as an erasing end or a writing end, stylus angle with respect to the writing surface, and the stylus rotation about a longitudinal axis of the stylus may also be determined from recognizable targets or features near the stylus tip (e.g. elements 22 and 26 in Fig. 1 of Burns).

The cited art generally detects an end of a stylus in a *thinly sliced planar region* just above a coordinate plane by, for example, the interruption of light from special mirrors on a framed border (Fig. 1 of Omura and Fig. 1 of Griffin) or by the detection of light emitted from the stylus having an LED (Fig. 8 of Omura and Fig. 2 of Ogawa). Omura and Ogawa actually teach away from the invention of Burns, in that elements are included to intentionally limit the view field to a very small distance from the coordinate plane (Figs. 5 and 21a-21c of Omura and Figs. 2, 4, 7b, 15b, 15c, 17 and 22 of Ogawa).

None of the cited art uses a telemetric imager or generates images of a stylus tip (e.g. claim 1 of Burns), and none of the cited art can detect imaging targets on the stylus (e.g. claims 4, 5, 25-27 and 34-36 of Burns). The method of Burns is different from that of any of the cited references, since the stylus position is determined based on images of the stylus tip (e.g. independent claims 1, 20 and 31).

4) Claim Rejections under 35 U.S.C. § 102(b) are Not Supported by the Cited Art

In the final office action of 10/31/06, the Examiner has provided eleven separate grounds of rejection for all pending claims 1-40, of which all eleven are disputed by the Applicant. Claims 31, 32, 38 and 39 currently stand rejected under U.S.C. § 102(b) as being anticipated by Omura et al (U.S. Pat. 6,594,023), and original claims 1-4, 6, 8, 10-13, 15, 16, 18, 20, 21, 23, 26-32 and 35-39 were previously rejected under U.S.C. § 102(b) as being anticipated by Ogawa (U.S. Pat. 6,100,538) in the first office action mailed 1/18/06 and finally rejected in the next office action of 3/20/06.

Neither Omura nor Ogawa has a telemetric imager or a controller that determines the stylus position based on images of a stylus tip, as does Burns (e.g. claim 1, remarks on pages 9-21 of the office action response of 1/30/06, and remarks on pages 10-11 of the office action response of 9/21/06). Neither Omura nor Ogawa determines a stylus position by generating images and determining the stylus position based on the generated images, as does Burns (e.g. claim 20). Neither Omura nor Ogawa has means for generating images of the stylus tip with a single telemetric imager or means for determining the stylus position based on the images, as does Burns (e.g. claim 31).

For a proper 102(b) rejection, “a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference” (MPEP § 2131). Neither Omura nor Ogawa have claim elements such as the telemetric imager of currently pending independent claims 1, 20 and 31 or original independent claims 1, 20 and 31 of Burns (see figures and captions below). Nor do Omura or Ogawa determine the stylus position based on generated images, as in independent claims 1, 20 and 31 of Burns. None of the references of record, either alone or in combination, describes, anticipates, teaches, shows or suggests the claimed subject matter. Dependent claims draw from the independent claims.

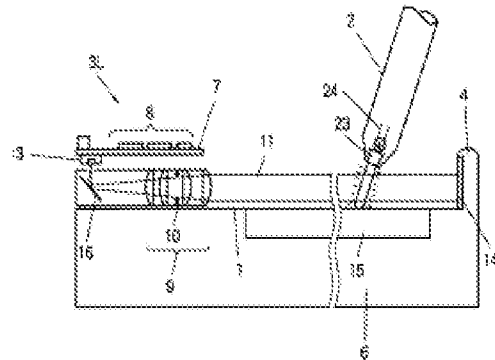
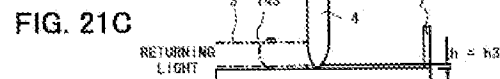
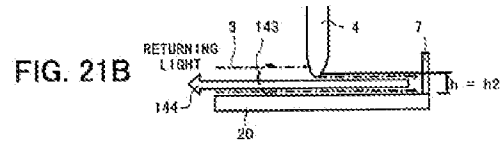
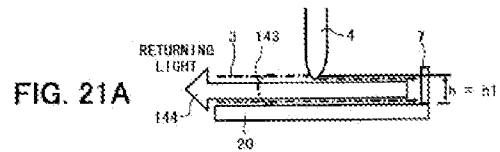
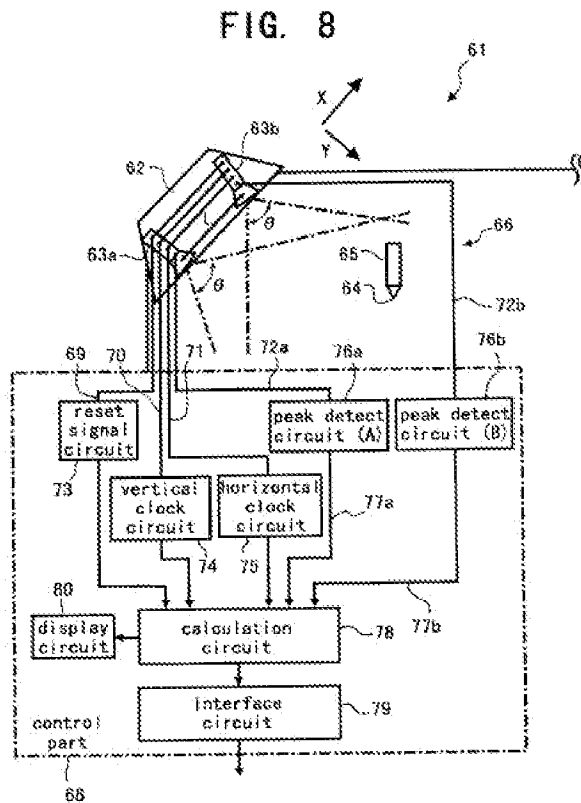


FIG. 8 of Omura (left). Note that coordinate inputting unit 65 has the infrared rays LED 64 at a tip end that is detected when the inputting unit is in contact with or a small distance from the display surface. Omura differs from Burns in that Omura has a frame, limits the view to a thinly sliced planar region essentially parallel to the display surface, uses an LED in the pen tip, does not generate images of the stylus tip, and is unable to tell the difference between a pencil end with one band and a pencil end with two bands, as can Burns.

FIG. 21a-21c of Omura (upper right). Note that designating device 4 interrupts returning light 144 from reflective member 7 as the designating device approaches the display surface 20 (Omura, col. 25, lines 43-56). The designating device of Omura interrupts light to determine stylus position, whereas the approach of Burns uses images of the stylus tip to determine the stylus position.

FIG. 2 of Ogawa (lower right). Light in a collimated view field 11 that is parallel to coordinate plane 1 is directed by wide-angle collimator lens group 9 from stylus 2 onto linear image sensor 13. Shield frame 4 encloses view field 11 to prevent extraneous light from entering into the detecting units 3L (shown) and 3R (not shown). Ogawa differs from Burns in that Ogawa has collimating optics, a restricted view field, and a light source in the stylus, whereas Burns does not. Nor does Ogawa generate images of the stylus or determine the stylus position based on the images as in Burns.

5) A Rejection of Claims under 35 U.S.C. § 103(a) is Not Supported by the Cited Art

Pending claims 1, 2, 4, 6, 11-13, 15, 16, 18, 20, 21, 23, 26, 27, 29, 30, 35 and 36; 37; 3, 8-10 and 28; 34; 5 and 25; 7 and 22; 17; 19; 14, 24 and 33; and 40 (also original claims 5, 25 and 34; 7 and 22; 9; 17; 19; 14, 24 and 33); have been rejected under 35 U.S.C. § 103(a) as being unpatentable over various combinations of Omura et al (U.S. Pat. 6,594,023), Ogawa (U.S. Pat. 6,100,538), Tsuji (U.S. Pub. 2001/0020936), Brown et

al (U.S. Pat. 4,430,526), Inabata (U.S. Pat. 5,245,175), McDermott et al (U.S. Pat. 5,635,683), Yoshida et al (U.S. Pat. 5,401,917), Badyal (U.S. Pat. 6,151,015), Segen (U.S. Pat. 5,484,966), Griffin (U.S. Pat. 4,553,842) and Wood (U.S. Pat. 6,414,673).

For a proper 103(a) rejection, 1) there must be some suggestion or motivation to modify or combine the references; 2) there must be a reasonable expectation of success; and 3) the prior art references must teach or suggest all the claim limitations (see MPEP § 2143). The examiner fails on each of the three criterion, as none of the cited references, singly or in combination, have a telemetric imager, nor do they determine the stylus position based on images of a stylus tip (independent claims 1, 20 and 31 of Burns). For example, none of the references, no matter how they are combined, will detect a writing-mode imaging target or an erasing-mode imaging target on a lead-pencil stylus as in Burns. Dependent claims draw from the independent claims.

6) Applicant Requests Pending Claims or Original Claims be Allowed Immediately

In light of the foregoing arguments, the Applicant submits that all of the claims in the application define over and are neither anticipated nor made obvious by the cited art, and that currently pending claims 1-31 and 33-40 herein fully satisfy the requirements of 35 U.S.C. §§ 102, 103 and 112 and are patentable over the references. The Applicant respectfully requests reversal of all rejections and prompt passage to issue of claims 1-31 and 33-40, or preferably claims 1-39 as originally filed plus paid-up claim 40.

If any questions remain that may be resolved through a personal or telephonic interview or if any of the contents of this pre-appeal brief request should be discussed, the Examiner or members of the Panel are encouraged to contact the undersigned at the telephone number listed below.

Respectfully submitted,

/David W. Burns/

15770 Rica Vista Way
San Jose, CA 95127
Telephone: (408) 729-6375

David W. Burns
Inventor, Applicant and Agent
Registration No. 52,676

Date: January 21, 2007